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ABSTRACT

This monograph discusses the benefits of recycling and reusing assistive technology for students with disabilities. It begins by discussing the benefits of recycled assistive technology for suppliers, students, and consumers, and then profiles programmatic models for assistive technology recycling programs. The advantages and disadvantages for giving assistive technology away, becoming a durable medical equipment dealer, becoming a discount broker, loaning it at no cost, and incorporating it into an existing redistribution organization are outlined for consumers, nonprofit organizations, and durable medical equipment dealers. The following sections address: (1) management aspects of recycling; (2) refurbished equipment marketplace; (3) components of computer recycling programs, including starting a recycling program, partnerships, and program management; (4) assistive technology recycling efforts around the globe; and (5) national issues, such as payment and funding for recycled devices, federal funding sources, transportation, policy issues concerning payment by public and private insurance programs, and program sustainability. Recycling efforts by different nonprofit organizations are profiled throughout the monograph. Appendices include a RESNA Technical Assistance Project bulletin on exchanging and recycling assistive technology programs. (CR)

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Discovering Hidden Resources

Assistive Technology Recycling, Refurbishing, and Redistribution

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Discovering Hidden Resources

Assistive Technology Recycling, Refurbishing, and Redistribution

RESNA TECHNICAL ASSISTANCE PROJECT

APRIL 2000

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Preface v

1. **The Benefits of Recycling and Reusing Assistive Technology** 1
   - Definitions Used in Recycling AT Equipment 2
   - How Recycled AT Benefits Suppliers, Students, and Consumers 2
   - All-Ways Accessible, Inc. 4

2. **Programmatic Models for Assistive Technology Recycling Programs** 5
   - Partnerships Lead to Success 7
   - The AT Recycling Process 7
   - Management Aspects of Recycling: Staff, Inventory, Liability, and Funding 9
   - Refurbished Equipment Marketplace 11
   - Into New Hands 13
   - Back in Action 15
   - Friends of Disabled Adults and Children 16
   - Check-It-Out 18

3. **Components of Computer Recycling Programs** 19
   - Starting a Recycling Program 19
   - Partnerships 20
   - Receiving, Refurbishing, Distributing, and Discarding 20
   - Program Management 23
   - ReBoot 25
   - Davis Memorial Goodwill Industries 28

4. **Assistive Technology Recycling Efforts Around the Globe** 29
   - Recycling Meets a Variety of Needs 29
   - Program Operations 30
   - International Medical Equipment Collaborative 32
   - Rotary International 33
   - East West Foundation 34
   - Whirlwind Wheelchair International 35

5. **National Issues** 37
   - Payment and Funding for Recycled Devices 37
   - Information about Federal Funding Sources 39
   - Transportation 40
   - Policy Issues Concerning Payment by Public and Private Insurance Programs 41
   - Program Sustainability 41
   - National Cristina Foundation 43
   - Northeast Assistive Technology Exchange 44

Appendixes 45
- A. List of Participants 47
- B. TAP Bulletin on Recycling 51

Preface

MANY STATE TECH ACT PROJECTS HAVE PROMOTED THE DEVELOPMENT OF SOME type of equipment loan, equipment exchange, or equipment recycling program. In addition, a number of related programs have been developed by private organizations throughout the country. As more programs have emerged, the value of sharing experiences with other equipment redistribution programs has become clear. Understanding the reasons for successes, as well as failures, is important in helping shape the success of new initiatives and in helping established programs better meet their goals.

The RESNA Technical Assistance Program, in collaboration with the New Hampshire Assistive Technology Project, hosted the "Discovering Hidden Resources" Conference in Arlington, Virginia, in March 1999 with the hope that sharing information about equipment redistribution programs would assist those who were developing or managing similar ventures. In addition to sharing information, there was a need to continue to exchange information beyond the conference, as well as to support programs that already were in operation. Out of this meeting, it was hoped that a vision would emerge of a national system that would enhance programs' abilities to identify and procure surplus equipment, support distribution including the development of transportation links, and foster relationships with national and international relief organizations. The information in this monograph provides a first step in making some of these ideas a reality.

Chapter 1
The Benefits of Recycling and Reusing Assistive Technology

OUR NATION CONTINUES TO STRUGGLE WITH MEETING LONG-TERM HEALTH care needs in an environment of reduced federal support in the Medicare and Medicaid programs. An aging U.S. population combined with the fiscal realities of balancing the federal budget, which has resulted in reductions in entitlement programs, make efforts to change long-term care policy more difficult. Studies have shown that the development of community support systems to reduce or eliminate the need for costly institutional care increases a person's quality of life and produces cost savings. However, a medical model currently dominates long-term care planning.

For those who are older or who have disabilities, assistive technology (AT) makes it possible to maintain community involvement and avoid the need for institutional care. Assistive technology includes items such as wheelchairs, hospital beds, augmentative communication systems, environmental control systems, ramps, and computers. While access to AT has been enhanced through the federal Technology-Related Assistance for Individuals with Disabilities Act (P.L. 103-250) (Tech Act), many barriers remain, particularly related to funding. Although AT, a multi-million dollar business, is only a small part of the total national health care budget, it can be essential in reducing the need for expensive institutional care. Unfortunately, coverage for devices has continued to become more restrictive as government health care and managed care programs reduce costs.

One means to address the reduced resources available for the purchase of AT is through the reutilization of existing assistive technology. An estimated 20% to 40% of assistive technology goes unused for a variety of reasons, such as changes in medical needs, an individual grows out of the equipment, or the equipment selected was not the appropriate piece of equipment for the individual. This

unused equipment creates a potential resource that could meet the needs of many individuals.

Definitions Used in Recycling AT Equipment

In waste management and product recovery, the term "recycle" is actually the last level in a hierarchy. The first level is "reduce," such as when a company reduces its inventory, and gets rid of extra stock. The second level is "reuse," which means to use again and again, to put a piece of equipment back in circulation. The third level is "recycle," which means taking something that was discarded and transforming it into some other kind of product.

In this document, the term "recycled" means to reuse an AT item. Recycled assistive technology equipment is any piece of used equipment, device, or aid that is now capable of being reused by someone else. The recyling programs featured have various names for this: reutilization, refurbishing, or redistribution.

How Recycled AT Benefits Suppliers, Students, and Consumers

Suppliers. The availability of refurbished equipment fills a void; it provides another tool for suppliers to satisfy the needs of consumers. Often, third party reimbursement systems establish caps, or limits, on payments for certain categories of equipment. Suppliers can offer recycled equipment as a less expensive alternative to allow consumers to stay within their financial limits. Reused equipment, compared with new equipment, also incurs a lesser co-payment amount when the consumer pays a percentage of the total cost. Since AT often is paid from consumers' own funds, recycled equipment allows consumers to reduce out-of-pocket expenses. Suppliers also can use recycled devices for rental requests to fill temporary needs.

Students. Currently, public schools do not have enough computers for all students, including students with disabilities. Students with disabilities use computers to complete classwork, take tests, conduct research, and improve their computer skills. Teachers find that course work completed on the computer is often easier to read, better organized, and easier to correct. Computer use often builds students' confidence and self-esteem.

Recycled technology can fill the need for more computers for students with disabilities. It can provide vital equipment for class use. It also can provide the extra devices that students take home to do their homework and get more comfortable with the technology. The less sophisticated computers that are available as

used equipment usually are less intimidating for students and can be modified to perform specialized tasks for individuals.

Consumers. Reused equipment is less expensive than new equipment, which is especially important if consumers must pay for devices out of their own funds. Moreover, consumers can afford to purchase second pieces of equipment, such as a second wheelchair, for convenience. Recycled, adapted recreational devices also offer more affordability than new devices.

Reused equipment can provide temporary access to devices when consumers are waiting for their newly purchased items to arrive. For example, consumers who are discharged from nursing homes, and who cannot take the equipment that they were using in the facility, can borrow recycled equipment until their new equipment arrives.

Being able to use a recycled computer in the home allows consumers to shop on-line, pay bills, and write checks more easily. Computers can provide an avenue of communication via e-mail, especially important for people with disabilities who may spend a considerable amount of time in their homes. Computers can help with employment, by providing a means to conduct a job search on-line or to telecommute.

A SUPPLIER'S VIEW

All-Ways Accessible, Inc.

Jeff Lavoie, President of All-Ways Accessible, Inc., in Concord, New Hampshire, had some initial concerns about a statewide recycling program. "When the REM (the state's recycling program) started, I had some reservations as to how the program would work and what it would mean to me. How would this affect my profit margin? Would a used equipment program flood the marketplace and then make the sale of new equipment more difficult? What if consumers purchased less expensive used equipment from the recycling program and caused me to lose out on sales?"

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None of these initial concerns have come to fruition. The REM recycling program was designed with the dealer in mind. It involved the business community from the beginning so an antagonistic relationship did not develop and the state's recycling program relied on dealer knowledge and expertise to make the program successful.

"The idea that used equipment would flood the market and decrease the sale of new equipment did not happen," said Lavoie. "Used equipment fills a void that new equipment cannot fill. When a consumer needs a piece of equipment and has funding issues, sometimes the only answer is to provide a good quality, less expensive piece of used equipment. If I did not have the option to sell the used product, then I would not have been able to satisfy the customer's need and I would not have made any sale at all."

"As a result of the New Hampshire recycling program, I am able to have another resource to quickly satisfy the customer's need. For me, this means that I have a happy customer who will continue to do business with me. I am able to quickly solve a problem by using recycled equipment and then move on to other sales that are more revenue generating."

"With HMO caps, many times customers will face the dilemma of purchasing a new piece of equipment with a large co-payment versus buying a piece of good, used equipment with a smaller co-payment. Obviously, the used equipment becomes the product of choice. Many times, this is the difference between making the sale or not making the sale."

"The recycled equipment program also serves as a great referral source. Many customers call the REM and they tell the customer to call me to make arrangements to purchase the used equipment, or for new equipment if used is not available. I also am able to service my other referral sources better by helping them out of difficult situations for minimal expense."

Chapter 2
Programmatic Models for Assistive Technology Recycling Programs

OPERATORS OF RECYCLING PROGRAMS HAVE MANY PROGRAMMATIC MODELS TO choose from when designing a program that fits their situation. Programs can be classified by the way equipment is redistributed. For example, equipment may be given away, sold, placed on consignment, or loaned.

Many programs give away used assistive technology. These programs see the distribution of equipment as a means to ensure that those who need the equipment will receive it. Into New Hands (INH) in Pittsburgh, Pennsylvania, and Friends of Disabled Adults and Children (FODAC) in Georgia are two programs that use this model.

Other recycling programs sell the used AT equipment, charging not only for the piece of equipment but also for the cost of refurbishing the equipment. These programs see the distribution of used equipment as a product line that generates revenue—at least enough funds to cover program costs. The New Hampshire Refurbished Equipment Marketplace (REM) and New Jersey's Back in Action (BIA) are two programs that work within this model.

AT technology recycling programs also can promote the short-term and long-term loan of equipment, such as the North Carolina Check-It-Out Program (CIO). Many states also operate an equipment exchange program/broker service or consignment program that allows individuals to identify others who want to buy or sell equipment privately among themselves.

Table 1—"Redistribution Models"—summarizes the advantages and disadvantages of each of these models for the consumer, the nonprofit organization, and the durable medical equipment (DME) dealer.

TABLE 1—REDISTRIBUTION MODELS

Advantages and Disadvantages to the Consumer, Nonprofit Organization, and Durable Medical Equipment (DME) Dealer

REDISTRIBUTION MODEL	CONSUMER	NONPROFIT ORGANIZATION	DME
Give it away.	**Advantages:** Consumer pays nothing. **Disadvantages:** No guarantees.	**Disadvantages:** Constant fund-raising to support activity.	**Advantages:** A place to refer customer who has no money. **Disadvantage:** Loss of a potential customer.
Become a DME.	**Advantages:** None. **Disadvantages:** Consumer must pay at market–no savings.	**Advantages:** Receives more money for equipment. **Disadvantages:** Must assume all liability and increased paperwork.	**Advantages:** None **Disadvantages:** Other DMEs have a new competitor.
Discount Broker.	**Advantages:** Consumer pays less than market. **Disadvantages:** Consumer can only get high tech items.	**Advantages:** Receives money to cover cost. Greater network to market products to. **Disadvantages:** Must still raise additional funds to support overhead.	**Advantages:** Can still make a profit and please customer.
Loan it at no cost.	**Advantages:** No cost to consumer. **Disadvantages:** Often no guarantee of the quality of the device. May not be the state of the art.	**Advantages:** Meeting a need. **Disadvantages:** Constant fund-raising to cover overhead. Must track equipment and no guarantee equipment will come back. Must repair and refurbish before equipment can be loaned out again. Equipment can become quickly outdated.	**Advantages:** No Benefit. **Disadvantages:** Loss of a potential customer.
Incorporate it into an existing redistribution organization (i.e., Goodwill Industries).	**Advantages:** Consumer can still save money. One stop shopping for used equipment, furniture, and clothes. **Disadvantages:** Consumer must travel to the store or location.	**Advantages:** Goodwill and other such organizations have name recognition, and have a proven system for refurbishing. Can be a training site for skill development in refurbishing equipment. Larger organizations have the ability to spread the overhead costs. **Disadvantages:** Must rely on customer to come to store.	**Advantages:** None. **Disadvantages:** Another competitor for used equipment.

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Partnerships Lead to Success

Successful programs encompass at least one or more partners. New Hampshire's REM works with a network of vendors as an integral part of its operation. It acts as the network's used equipment wholesaler. INH in Pennsylvania was formed through the consolidation of several small recycling programs maintained by disability organizations. These organizations now actively support INH and funnel donations and client referrals to INH. North Carolina's CIO has developed a statewide scope by painstakingly adding local partners to form a regionalized service delivery system.

The AT Recycling Process

All recycling programs need systems for receiving, refurbishing, and distributing items.

Receiving. To encourage donations of usable AT, programs advertise in many different ways. Often, advertisements are placed in community papers and in the yellow pages in local telephone directories. Other unique methods of advertising have been used successfully. For example, New Hampshire's REM distributes stickers that vendors put on new equipment that encourage users to donate the equipment to the REM when they no longer need the devices. Additionally, programs often designate regional centers as drop off places to increase donations and to facilitate transportation of items to a central location.

Programs have learned to be selective in accepting equipment. Programs only take those items that are apt to sell. They have learned to say "no" to items that have a low turnover. (See Figure 1—"How to Avoid Costly AT Mistakes"—developed by the REM.) With limited space, the storage of goods is often a consideration when programs decide what they will accept. Even programs that expand into large warehouse facilities still find that space fills quickly.

The receiving process includes providing the donor with a receipt for the donation. Since recycling programs tend to be operated by nonprofit organizations, donations to the programs can be considered tax deductible. Successful programs have an inventory tracking system, usually one that is computerized and ideally one that uses bar codes to identify items. When donors give large items, such as motorized wheelchairs, the donor is encouraged to provide an operating manual to give to the next owner.

Refurbishing. When items arrive, initial evaluations are conducted to determine the extent of refurbishing that is needed. Minor cleaning and simple repairs are done in-house. For more extensive refurbishing, trained technicians

FIGURE 1—HOW TO AVOID COSTLY AT MISTAKES

by Therese Willkomm, Refurbished Equipment Marketplace

1. Don't accept equipment that will cost more to refurbish than it is worth. Examples of these types of equipment include rusty chairs, chairs with bent frames, broken computer monitors, and computers that come without RAM or hard drives.
2. Don't accept items that are considered hazardous waste and will cost more to dispose of if it is later determined that the items do not work. This equipment includes broken monitors because of non-working cathode tubes, some electronic equipment, equipment that is made with chrome, and expired chemicals.
3. Don't accept low turnover items such as manual hospital beds, fixed walkers, or wheelchairs with fixed arm rests.
4. Don't accept any expired goods.
5. Don't accept items that will require ongoing technical support. You will spend considerable time on the telephone as you try to help troubleshoot a problem.
6. Don't respond to every pickup request that you receive. Ask detailed questions about equipment that is being donated to insure that it is good quality. If possible encourage that the equipment stays wherever it is and that a picture of the equipment or the device is sent. These pictures can be transmitted easily via e-mail to prospective buyers or placed on the Internet.
7. Don't accept equipment that is more than 6 years old. Since the focus of the REM is on good quality equipment and maintaining dignity, older pieces of equipment seldom turn over.
8. Don't become a dumping ground. Learn to say no. If you don't you will pay for it in labor, storage, and disposal costs.

complete the repairs and conduct a final safety check to ensure the item is ready for use. Items are steam cleaned and often shrink-wrapped before they are ready for distribution. When items are sold, the prices for the items include the cost of parts and labor used in the refurbishment.

Some recycling programs incorporate job training or rehabilitation programs into the refurbishing efforts. For example, FODAC employs persons with traumatic brain injury to refurbish equipment as part of their rehabilitation.

Distributing. With most recycling programs, customers can try out items before they are purchased or taken home. Indeed, reuse programs stress the importance of trying out items before buying to avoid abandonment of the equipment. It is an advantage for the customer that reuse programs take in all makes and models of equipment so customers usually have a wide variety from which to choose. Consumers may be unaware of different types of equipment on the market if they work with a dealer that does not carry many models. With more complex items, such as motorized wheelchairs, the recycling program offers the customer instruction on how to use equipment.

Used equipment programs publicize the items that they have available. BIA

publishes a catalog that describes each item. To reach diverse audiences, BIA also makes presentations at schools to inform teachers and parents about the program and it uses exhibits at a popular statewide AT exposition to educate the public. Other programs use their Web sites to attract customers. Reuse programs often gather information on their customers to identify the demographics of their client base, but also to ensure that the customer meets any eligibility criteria for their program. For example a recipient of equipment from INH must fall below a certain income level to be eligible to receive free devices. Recycling programs maintain waiting lists for specific items. As an item becomes available, those on the waiting list are notified. The list also serves another important purpose. It indicates to potential sponsors and donors that there is a need for particular items.

Management Aspects of Recycling: Staff, Inventory, Liability, and Funding

Staff. Most programs have some paid staff, usually a program manager, who is responsible for the daily operations of the program, and a technician, who is responsible for refurbishing efforts. For example, the REM employs a technician who is certified to repair the brand names carried by the vendors. Thus any repairs made as part of the refurbishing efforts are completed under the manufacturers specifications and certified by the vendors.

Volunteers are essential to most of the recycling programs. They expand the reach of the program and the activities in which the program can engage. FODAC uses volunteers to drive the van that picks up donations, to operate the thrift store, to help with fundraising, and to refurbish the equipment.

Inventory. Most recycling programs track their inventory using a computerized database. REM uses a bar coding system that allows each item to be easily identified and tracked from receipt to refurbishing to redistribution. The program's Web site allows customers to see what items are available.

CIO found that to keep all its regional partners operating as a team, it needed to have a common database and standard procedures. CIO offers its database free to its regional partners and for purchase to other recycling programs.

Liability. Many of the recycling programs are covered under their own or their host agency's liability insurance, such as New Jersey's BIA, which is covered under Matheny Hospital's liability insurance. INH tries to limit liability by having the recipient of the equipment sign a release form acknowledging that the equipment is used. (See Figure 2—"Pre-Owned Equipment Release.") The REM requires its

FIGURE 2—PRE-OWNED EQUIPMENT RELEASE

The undersigned (the "Donor") acknowledges that the Donee has received _____ (the "Equipment") free of charge from _____ (the "Donor"). The Donee further acknowledged the Equipment is used equipment, and that the transfer of title to Donee by gift does not involve a sale or marketing of the Equipment.

Donee acknowledges that Donor has warranted that it is transferring good title to the Equipment to the Donee. The undersigned further acknowledges (I) THAT THE DONOR MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A SPECIFIC PURPOSE ARE HEREBY DISCLAIMED BY DONOR, AND (II) THAT THE DONEE IS ACCEPTING THE EQUIPMENT "AS IS." Some examples of equipment are wheelchairs, walkers, bedside commode chairs, and bath chairs.

Donee, with knowledge that the Equipment has been received free of charge and received subject to above disclaimer of warranties, does hereby release and discharge Donor, its agents, servants, directors, trustees, employees, successors and assigns of and from any and all liability, claims, causes of action, damages or demands of any kind whatsoever in law or in equity, known or unknown, foreseen, or unforeseen, including but not limited to claims for negligence and/or products liability arising out of or in connection with the said Equipment and/or its use. Provided further that Donee shall indemnify and save harmless the Donor, its agents, servants, directors, trustees, employees, successors and assigns against all claims, demands, suits, judgements, and all cost, expenses and counsel fees incurred on account thereof, which are based upon injuries, sickness, disease, or death suffered by Donee or by third parties caused in any manner by said Equipment, and/or arising in whole or in part from any negligent acts or omission of Donee, the Donee's family members, volunteers, agents, servants, employees, directors and/or trustees in relation to said Equipment and/or its use.

Witness: _____ Donee: _____

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network of vendors to assume the liability on used equipment that it sells. Since the REM technician is certified to do repairs, the vendors are willing to accept this risk. The used equipment liability is covered under the existing liability policies for their businesses.

Funding. Recycling programs receive funds from several sources including their state's AT program. FODAC conducts several fundraising activities. It operates a thrift store that sells clothing and other used goods. It sponsors an annual golf tournament and an ongoing fundraiser to "own a square foot of FODAC."

REM calculates that its cost of operation is $115,000 per year. Approximately one fourth of this cost is recovered through the sale of refurbished items to vendors. Some funds are received by the direct sale of small items, such as canes and crutches, to customers. A grant from New Hampshire's state AT program provides additional revenue for the program.

WHOLESALE MODEL

Refurbished Equipment Marketplace

The Refurbished Equipment Marketplace (REM) began 5 years ago as part of a nonprofit organization established through the New Hampshire Assistive Technology Partnership located in Concord, New Hampshire. Through the wholesale model, equipment is received by the nonprofit, refurbished, and then sold directly to vendors who sell the equipment to consumers.

"REM uses a wholesale model to sell directly to vendors for several reasons, one is liability," explained Therese Willkomm, Director of REM. "We don't have to assume the liability if equipment should break. The other most important reason is the issue of unfair business practices. If we were to sell this equipment at significantly lower prices than the market, the vendors potentially could accuse us of undercutting their businesses."

"One of our goals for REM is to provide good, quality equipment at affordable prices and often this equipment is 10% the cost of retail," said Willkomm. "It's a significant savings to consumers."

Currently, the REM network consists of 18 vendors. Each vendor pays an annual member fee, which entitles the vendor to buy refurbished items from the REM. Vendors assume the liability for these items as they then sell them to consumers. In 5 years of operation, approximately 4,000 pieces of equipment have been donated and 2,200 have been sold.

DONATIONS

REM has gone through a long trial-and-error process to determine what to accept. The decision is based on limited storage space and whether an item is likely to be bought by consumers. REM has established that equipment must be no more than 6 years old. Demand plays a large part in deciding what types of equipment will be accepted. Items in demand include overbed trays, extra wide wheelchairs, hospital beds, power chairs, electric chairs, and power scooters. The cost to refurbish the equipment must be less than the amount for which it will be sold. It does not accept soft goods (catheters, diapers, leg braces), certain medical equipment, or computers.

REM staff question potential donors over the telephone before accepting a piece of equipment. If a computer is donated, REM asks the donor to demonstrate that the computer and monitor work. Donations are received as a result of vendor referrals, ads in home care places, word of mouth, and marketing efforts of the project that encourage donations to the REM. The REM also accepts some items to be placed on consignment by consumers and some of these may lead to the donation of the piece of equipment if the equipment does not sell. REM has a van to pick up items throughout New England and to make occasional deliveries.

REM does not accept broken computer monitors since such monitors are often considered hazardous waste and there is a disposal fee, often as high as $8 per item, to dispose of them safely. The public may think it is doing a service by donating any assistive technology, including computers, and often does not understand that disposal may be costly.

REM now brokers any computer donations to four sources: United Way; Prison Project; the Square Row Institute, which rehabilitates computers for senior citizens; and developing countries. The Prison Project refurbishes computers and redistributes them to schools.

STORAGE AND REFURBISHING

Donated equipment is stored in a central location, a barn that the REM turned into a warehouse in Concord, New Hampshire. Because space is limited, REM cannot accept everything that is donated. Also, if an item sits in the warehouse too long it may prevent REM from accepting more quality equipment. Currently the program pays $2 per square foot to rent the warehouse, compared with the going rate of $5.50 per square foot.

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When a donation arrives, a triage type of procedure is conducted to determine what needs to be done to a particular item. Volunteers clean items, replace tires, and make minor repairs. A paid technician provides more extensive service. Repairs are made according to industry specifications, and the amount of time taken for repairs is tracked. Labor charges are added to the item's selling price.

Refurbished items are steam cleaned and put in plastic bags. The inventory is tracked with a bar code system and stored in a numbered bin.

REDISTRIBUTION

REM sells items to vendors in its member network. Vendors set the prices of the devices. REM has been working to have all vendors agree on a standard markup (Medicaid is cost plus 40%). Some vendors have agreed to abide by a standard markup, but they are not obligated to do this. REM has a 30-day return policy. Any item can be returned during this period with no questions asked. REM sets its prices on items based on what the market will bear. Usually a 5-year depreciation schedule is used in setting the price.

Small ticket items, such as canes and crutches, are now sold directly to individuals by REM. These items initially were sold through vendors, but the process involved was too time-consuming, compared to the prices of the items. REM's vendor network determined that REM should sell these items directly to consumers.

OTHER SERVICES

REM rents items to vendors, including power scooters, so that potential customers can try out equipment prior to purchase. This reduces abandonment of equipment by customers who find particular items do not work for them.

It also allows individual consumers to offer their devices on consignment through REM. REM receives 25% of the sales price. REM has a Web site that includes pictures of available items, and the site has become a virtual store. Individuals can list their own items on the Web site. The site is located at www.neatexchange.org.

REM also has a thriving AT equipment/device parts business. These parts come from equipment that cannot be refurbished.

Parts include casters, tires, rims, controls, motors, battery chargers, and seating systems. These parts are sold to the vendors. Because of storage limitations, REM only stocks 10 of each item.

REM also donates low turnover items to consumers in this country and abroad. For items that are in low demand in this country, for example, fixed walkers that are hard to transport in a car, REM distributes these excess items to developing countries, often through the help of the International Medical Equipment Collaborative (IMEC). Since the partnership was formed, REM has given 1,500 items to IMEC.

CONSOLIDATION OF SEVERAL SMALL PROGRAMS

Into New Hands

Into New Hands was started in 1994 by a consortium of disability organizations in the western Pennsylvania area. "The consortium pulled all of its existing equipment loan closets and other resources together and formed Into New Hands (INH) at the Center for Independent Living of Southwest Pennsylvania," recalled Kevin Huwe, Project Director of INH. "The other disability specific organizations became referral sources, not only to refer an individual in need of equipment to INH, but also to refer donors who had excess equipment to INH."

INH recycles DME and then gives it away. Ideally, the host independent living center (ILC) tries to assist individuals in obtaining new equipment. However, when that is not possible, due to an immediate need, or lack of funds on the part of the individual, then the recycled equipment is a good stopgap measure to fill the needs of the individuals.

INH receives donations of equipment from many sources. Vendors are asked to donate equipment and parts. Vendors see this as an advantage because their donations are considered tax write-offs. Vendors also see working with INH as a long-term investment toward getting new customers. If an individual with a disability starts with used equipment the first year, often the person becomes a paying customer by purchasing new equipment the next year.

INH does some refurbishing in-house, mainly simple cleaning and readying of equipment. For more extensive refurbishing, INH asks vendors to refurbish equipment and also to transport it to customers.

"I use vendors to refurbish the equipment and transport it to the needed consumer," said Huwe. "They are willing to refurbish equipment for free because they know that they are receiving the referrals for new equipment through me also." Vendors also see that a customer who receives a used piece of equipment and has been happy with its service will come back to the

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vendor as a paying customer for other items.

DISTRIBUTION

Individuals with disabilities who do not have sufficient income, adequate insurance coverage, or other financial backing for assistive technology are eligible to receive preowned equipment through INH.

The primary way that INH distributes equipment is direct giveaway. INH maintains a list of equipment that is needed. It encourages customers to stay on its waiting list to prove that there is a need for that piece of equipment. Every 6 months INH checks with the people on the list to see if they still want to be on it.

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A challenge for INH has been the transportation of equipment to the customer. Vendors often supply the needed transportation, but this is still an ongoing issue for INH.

INH assumes liability for its equipment. It uses a liability release form that each agency signs. INH invested a tremendous amount of time in developing the liability release form. While the form may be a helpful tool, INH realizes that the form does not provide an absolute guarantee against possible liability actions.

INH also loans equipment. Recycled equipment is ideal for people moving out of nursing homes. Because these individuals are not able to take the equipment from the nursing homes to their new residences, they need to borrow equipment from INH until their new equipment purchases arrive.

Loans allow a person to try out a piece of equipment. INH receives many donations from individuals who cannot use the equipment because it never fit their needs. A loan helps reduce the likelihood of purchasing the wrong equipment. Loans enable people to try out equipment easily in their homes. A person may have found that a particular piece of equipment worked well in the hospital, but until they try it at home the individual will not know if it works in this setting. For example, an extended bath bench may work fine in a large hospital bathroom but not function properly in a small home bathroom.

Loans also can be arranged through a statewide equipment loan library. Library branches are available throughout Pennsylvania. If a person needs to borrow a TTY, he or she may do so through the INH; or a statewide program will provide a TTY as a loan or on a permanent basis.

OUTREACH IS KEY

Back In Action

The first goal of Matheny Hospital's Back In Action (BIA) assistive technology recycling program is to publicize the availability of its program components. BIA consists of a recycling program, an AT exchange program, and an equipment loan program. BIA publicizes its services through having a toll free number, distributing its catalog, placing ads in the local newspapers, and using public service announcements (PSAs) on local radio stations. Phone calls are tracked to make sure word is getting out to all regions of the state. Results of calls are analyzed to determine who receives the news and how they found out about the program. Then staff determines how best to increase the awareness activities.

"Initially the whole focus of what we were trying to do was simply to get the word out about the program, primarily through distributing copies of our catalog of recycled equipment," said Dan O'Neill, Project Director of BIA. "Now we are focusing our efforts a little better. We don't send the catalog out in multiple copies. But we have found it effective to send the catalog to every politician, including the governor, so that they can offer their constituents this service and get the name out about the program."

Even though Matheny Hospital has conducted several publicity campaigns, people are still unaware of the program. To increase awareness BIA staff give presentations to professional organizations. For example, these presentations have been made to school districts to encourage them to share the information with parents and students.

BIA exhibits yearly at the Abilities Expo, a large AT fair that occurs in early April each year in New Jersey. At this fair, major manufacturers show their new products. BIA, however, wants to attract people looking for secondary pieces of equipment. For example, customers may want a second chair but are not eligible for one through a public or private funding source. Or they may not meet third party funders' criteria for a power wheelchair but need some sort of power assistance.

SERVICES PROVIDED

BIA primarily serves New Jersey, although some sales, donations, and loans are from New York and Pennsylvania. The most popular items are architectural elements, such as portable ramps. Computers and personal care items, such as transfer benches are also popular. Mobility devices and transportation items are big sellers. The three components of BIA's program, a recycling program, an AT exchange program, and an equipment loan program will be discussed in this section.

For BIA's recycling program, much of the equipment that the agency recycles is not necessarily at the BIA facility. It remains with the donor until it is sold. However the equipment that is brought in to the center is inspected and a determination made as to whether or not it will be fixed up.

"We don't necessarily deal with cosmetic items, new arm pads and such," said O'Neill.

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"The main focus of that assessment is really individual safety. The technician looks for safety items. Is the frame of the device/equipment structurally sound? If we feel that a piece of equipment can be refurbished cost effectively and will be safe, then that equipment is refurbished. If it is refurbished, the cost to repair it is included in the sale price of the item." For large items, BIA provides on-site training before the buyer leaves with the item. If an owner's manual is available, this is passed on to the new owner.

Items to be recycled or exchanged are listed in the BIA catalog. This catalog contains a brief description of the item including the make, model, and size. The catalog is kept updated with items listed for 1 year. Expensive items, such as a van or house, are listed for a longer period of time.

The BIA staff answer phone calls regarding the items in the catalog. Calls are returned within 2 business days. Often callers refer to a specific item and the BIA staff member provides information about the item and supplies the seller's first name and telephone number. Each seller must sign a release form before BIA staff can give out the seller's name and phone number. After the potential buyer contacts the seller and a match has been made, the seller calls Matheny Hospital and the item is taken out of the database.

VOLUNTEERS AS A KEY COMPONENT OF A RECYCLING PROGRAM

Friends of Disabled Adults and Children

Ed Butchart started the nonprofit organization Friends of Disabled Adults and Children (FODAC) in 1987 as a mission ministry of Mount Carmel Christian Church in Stone Mountain, Georgia. Butchart's goal was to offer a variety of services to persons with physical and mobility impairments. FODAC was started with a small collection of wheelchairs. The program has grown immensely over the years and is now housed in a 74,000 sq ft warehouse with a staff of 30 people. Last year it distributed, free of charge, 5,300 wheelchairs, hospital beds, and other devices. Volunteers refurbish most of the equipment.

All equipment is provided with a "life-time" guarantee. "As long as FODAC is alive it is guaranteed," said Butchart, founder and president of FODAC. Recipients may trade in or bring in any item, including non-FODAC items, for repair at any time.

SERVICES PROVIDED

FODAC recycles equipment, primarily used mobility and home health care equipment. The equipment is repaired and refurbished and provided, at no charge, to anyone who needs it. Items available include wheelchairs, canes, crutches, hospital beds, bathroom equipment and other special need items.

FODAC provides other ser-

vices besides recycled equipment. It provides free, accessible transportation to essential places for individuals who use wheelchairs. This service is provided on a first-come, first-served basis. This service has some built-in limitations of time and distance but as many people as possible are served.

FODAC collaborates with the Traumatic Brain Injury Community Reentry Program, a program that has been in operation since 1992. FODAC offers a post-medical rehabilitation setting that has proven to be extremely effective in developing confidence, self-esteem, and new job skill levels among survivors of traumatic brain injuries.

FODAC does not refuse any requests for assistance and many organizations serving people overseas are helped. FODAC wheelchairs currently are rolling in 51 countries as well as 34 states. In its history, FODAC has provided $18.3 million in equivalent retail value of services and has spent only $2.6 million in operating funds. That means that for every dollar spent in operating costs, $6.85 in services have been provided.

VOLUNTEERS

Most of the refurbishing is accomplished by volunteers and a continuous effort is made to recruit volunteers of all ages from Boy Scouts to senior citizens. Community service workers from the county systems also are used effectively to perform many tasks.

Volunteers have assisted with several activities that generate funds for the ministry. They operate the FODAC thrift store, assist with fundraisers, and help with the operation of the program. They have assisted with the annual golf tournament, which raises additional funds for the program. Volunteers also build ramps and make other small modifications to homes.

FUNDING

Funds are sought from any available sources. FODAC operates a Thrift Store (located in its building), which provides about 40% of FODAC's operating costs. Churches provide about 27%, individuals about 15%, and corporations and foundations provide the rest. Fundraising events such as a golf tournament, gospel singing, fishing tournament, and a raffle for a new car also are held annually.

Contact Information
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Stone Mountain, GA 30083
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LOCAL CENTERS FACILITATE EQUIPMENT LOAN PROGRAM

Check-It-Out

The North Carolina Assistive Technology Project integrated short-term and long-term loan and recycling efforts into one program through the use of regional centers located throughout the state. Currently 17 agencies are involved, through 32 participating sites, in the Check-It-Out Project (CIO). Of these 17, 7 are Developmental Disability Councils or Woman's and Children's Health Centers, 5 are regional North Carolina Assistive Technology Programs, and 5 are rehabilitation hospitals. In 1997 and 1998, 1,300 loans were made from a pool of 19,000 items. Each local agency develops its own loan policies regarding what is loaned, who can receive a loan, and the length of time an item is loaned.

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Web site:
http://www.check-it-out.org

"We started this program six years ago by linking existing equipment and recycling programs. We discovered that all the different agencies were willing to participate if they retained local control of their equipment. That was fine with us. We didn't want to take away their equipment, we just wanted to share information statewide," explained Sonya Van Horn, Project Coordinator for North Carolina's CIO Project.

To aid information sharing, CIO provided local agencies with a common database to track the equipment inventory and to generate reports. The Project trained agency staff on how to use the database, how to manage inventory, and how to access the common Internet site.

Common forms are used by the agencies to gather vendor information, record the loan history of each piece of equipment, and track borrowers. Consistent formats were developed for handling internal records and sharing loan inventory information across the state. The database is used to produce reports on equipment that is overdue, what equipment is currently on loan, demographic information regarding the location of the equipment, and the number of times each type of equipment is loaned. These reports guide the purchase of equipment that is in demand.

"We generally treat recycled equipment as a long-term loan so the equipment stays with the person as long as it is needed and being used," said Van Horn.

The CIO Web site (http://www.check-it-out.org) is popular with users. It offers 24-hour access to the database of equipment. The Web site links all the local agencies together. Loan requests can be generated online. A Web search engine allows potential borrowers to browse the collections of all the agencies.

A calendar of training events is included on the Web site. The Web page received 21,000 hits in the last year. Plans are underway to increase access features to the Web page for people with low vision and to add photographs of the various equipment items.

Chapter 3
Components of Computer Recycling Programs

WITH SURPLUS COMPUTERS GATHERING DUST AS CORPORATIONS AND INDIVIDUALS upgrade technology, the recycling of computers makes sense. Computers can provide individuals with personal productivity tools, such as word processing, access to the Internet, and electronic communication, and can enable some people to work at home. Used computers offer these possibilities.

Starting a Recycling Program

Existing recycling programs can add computers to their product lines. This was how Davis Memorial Goodwill Industries (DMGI) became involved in computer recycling. Existing recycling programs have an infrastructure already in place. This infrastructure may include a central receiving facility, storage space, staff, and procedures for processing items. DMGI found that, even with these advantages, there were some obstacles to overcome. Management and sales staff lacked computer expertise. Not all the stores were suitable for computer sales. There was a need to receive "buy in" for this new endeavor from all involved to ensure that the program was integrated into the rest of the organization.

For programs just starting, a person who can "champion" the cause is essential to bring the program into existence. The Georgia ReBoot program found it important to have a staff member who was able to push the project forward. A successful leader in this effort needs to have a passion for the project, organizational skills, computer skills, management skills, and the ability to actively solve problems.

Partnerships

Computer recycling programs are often successful if they partner with business and corporate groups. These groups can be active sources of donated computers, and they can provide technical expertise and a source of volunteers. They are also potential sources of funding.

Other partners could include other recycling programs, technical colleges, software producers, hardware manufacturers, personal computer (PC) user groups, and regional centers.

Receiving, Refurbishing, Distributing, and Discarding

Computer recycling programs incorporate many of the features of other assistive technology recycling programs. They receive used computers, refurbish them, and distribute them to customers. Computer recycling programs have an additional task of discarding unwanted computers safely as the cathode ray tubes and other computer parts are considered hazardous waste.

Receiving. Programs publicize their need for donated computers. ReBoot distributes flyers and works through its regional centers to get the word out. Corporate donors often give large volume donations and provide the transportation to get the computers to the recycling center.

When a donation is received, ReBoot collects information about the donor and the computer and stores it in a database. To foster repeat donations, ReBoot makes sure donors are sent thank you notes, are invited to events at the Centers, and are generally regarded as partners.

Recycling programs have learned to say no to certain donations because some donated equipment will not be usable by their customers, either because it is too slow or because it does not work. If a program takes in older computers equipment disposal becomes an issue. DMGI often does not have a choice in saying no. People drop off their old computers, believing the machines may be of use. Recycling programs have found that educating potential donors about their needs will result in the program receiving higher quality used items.

Refurbishing. Refurbishing of computers involves cleaning the drives and installing new operating systems. This refurbishing is usually completed in-house. In fact, the DMGI uses the computer refurbishing process as a job training opportunity for its clients. ReBoot calls on students from a local technical college to augment its technical staff by refurbishing many of the computers. The

New Hampshire REM sends its computers to a refurbishing industry located within a state prison.

Donors of computers expect to have their old files erased from the hard drives before the machines are distributed to others. Once a computer is readied, it then must have a new operating system loaded onto it. Recycling programs encourage donors to transfer the licenses to their operating systems and to provide documentation for Windows 95 and more advanced operating systems. If this is not possible, then Windows 3.1 usually is loaded and an inexpensive applications software package, such as New Deal software, which is designed to work on slower machines, is installed. ReBoot documents the software and system with which each of its computers is equipped. Figure 1—"Contents of Computer"—provides an illustration of what is attached to each computer to identify its contents. Any computers that are not saleable are cannibalized and used for parts.

Distributing. Programs that sell recycled computers keep costs down so that the machines are attractively priced. The DMGI sells 386s for $99 and 486s for $150. It also tries to put together a package based on a person's need for the computer. For a person whose goal is to connect to the Internet, a computer and modem package is priced at $250.

ReBoot gives away its computers. Applicants wishing to receive a computer must complete a form. (See Figure 2—"Application for Computer Re-Utilization Service.") Once accepted, the recipient must sign an agreement and perform 20 hours of volunteer work. After the person has received a computer, ReBoot follows up with the individual to provide any additional technical support.

Computer recycling programs consider basic computer literacy training and follow-up technical support to be essential for the individual who receives a computer. If a customer does not know how to operate the device it will sit unused. ReBoot provides training at its regional centers, so that lessons can be tailored to fit the needs of the person receiving the computer. The East West Foundation (EWF) also provides 4 to 6 hours of training to the individual and family and is available for technical support as needed.

Discarding. As stated previously, because computer parts are considered hazardous waste, they must be disposed of properly, usually at a special landfill and for a fee, approximately $8 per item. The DMGI initially received a grant from the Environmental Protection Agency to recycle computers. It was able to dispose of unusable computers at a special site and for a much lower fee. Nationally, disposal of computers is becoming a larger issue, as more and more computers are added to landfills and the quantity of hazardous waste increases.

Since businesses ridding themselves of outdated technology also must pay

FIGURE 1—CONTENTS OF COMPUTER

Reboot

Promoting Independence for People with Disabilities through Computer Recycling

Date: _____
Tech: _____
Final Check Tech: _____
Donor: _____
System #: _____
Recycled for: _____

COMPUTER

Style: ❑ Desktop ❑ Tower ❑ Laptop
Serial #: _____
Make/Model: _____
Processor: ❑ 486 ❑ Pen. I ❑ Pen. II
Speed: _____
RAM: _____
HD Size: _____
Drives: ❑ 3.5 ❑ 5.25
CD Drive: ❑ 8x ❑ 32x ❑ DVD ___x
Modem: ❑ 28 ❑ 33 ❑ 56

Connectors

___ Serial: ___ pin M
___ Parallel: ___ pin F
___ Game: ___ pin M
___ Monitor: ❑ 15 pins

Cards

❑ Sound: _____
❑ NetWork: _____
❑ Video: _____

Software Loaded

❑ DOS 6.22 ❑ New Deal
❑ Win. 3.1 ❑ Win 95

Match With

Keyboard: ❑ PS/2 ❑ AT
Mouse: ❑ PS/2 ❑ Serial ❑ None Avail.
Monitor: ❑ VGA ❑ SVGA
Monitor Size: ❑ 14" ❑ 15" ❑ 17" ❑ 21"
Additional Comments: _____
_____

Fill out both forms then cut along dotted line.
Attach Left Form to computer.
Turn in the Right Form. THANK YOU!

Reboot

Date: _____
Tech: _____
Final Check Tech: _____
Donor: _____
System #: _____
Recycled for: _____

COMPUTER

Style: ❑ Desktop ❑ Tower ❑ Laptop
Serial #: _____
Make/Model: _____
Processor: ❑ 486 ❑ Pen. I ❑ Pen. II
Speed: _____
RAM: _____
HD Size: _____
Drives: ❑ 3.5 ❑ 5.25
CD Drive: ❑ 8x ❑ 32x ❑ DVD ___x
Modem: ❑ 28 ❑ 33 ❑ 56

Connectors

___ Serial: ___ pin M
___ Parallel: ___ pin F
___ Game: ___ pin M
___ Monitor: ❑ 15 pins

Cards

❑ Sound: _____
❑ NetWork: _____
❑ Video: _____

Software Loaded

❑ DOS 6.22 ❑ New Deal
❑ Win. 3.1 ❑ Win 95

Match With

Keyboard: ❑ PS/2 ❑ AT
Mouse: ❑ PS/2 ❑ Serial ❑ None Avail.
Monitor: ❑ VGA ❑ SVGA
Monitor Size: ❑ 14" ❑ 15" ❑ 17" ❑ 21"
Additional Comments: _____
_____

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disposal fees, the EWF has capitalized on this requirement to receive extra funds for its work. EWF allows corporations to provide grants to EWF to be their recycler. These grants pay for disposal of used machines, transportation of the machines to the refurbishing center, and labor and parts for refurbishing the machines.

Program Management

Staffing. Besides a program manager, who champions the program, recyclers need a computer hardware technician, someone who is at least A+ certified. ReBoot also has found it needs a software installation and de-installation wizard, a computer literacy instructor, an intake and follow-up coordinator, and a funding rainmaker. DMGI found it also needed a driver to transport the computers from one store to another.

Volunteers are a good source of workers. ReBoot relies heavily on volunteers and recruits them from a variety of sources, such as corporate partners, the local technical college, and a PC users group. ReBoot even was successful with a grant to hire AmeriCorp volunteers. With this diverse group of volunteers, ReBoot found that it needed to manage these groups better. It has delineated specific job categories and assigned these jobs to the volunteers. Volunteers are then provided with training for their job categories.

Funding. The operating costs for computer recycling programs can vary. DMGI estimated that its annual budget expenses were about $140,000. ReBoot figured that it needed a $100,000 funding base. These costs account for staff salaries and benefits, storage, and transportation.

FIGURE 2—APPLICATION FOR COMPUTER RE-UTILIZATION SERVICE

Reboot

Application for the Computer Re-Utilization Service

Date: ___/___/___
Name: _____
Age: ____ Contact Person: _____
Phone: _____
Address: _____
City: _____ State: _____ Zip: _____
County: _____
Phone Number: (___) _____
Fax Number: (___) _____
Sex: ❑ Female ❑ Male
Race: _____
Are you a DRS Client? ❑ Yes ❑ No
Were you a DRS Client? ❑ Yes ❑ No When? _____
Please describe your disability: _____
1) Explain why having a computer will help you: _____
2) Have you tried to obtain a computer from another source? ❑ Yes ❑ No
If yes, what have you tried? _____
3) To qualify to participate in ReBoot you must have an Action Plan for Training
How will you learn to use the computer? _____
4) Would you like to go through computer training?: ❑ Yes ❑ No
Would you be able pay for computer training? ❑ Yes ❑ No
How much would you be able to pay? ❑ $10 ❑ $15 ❑ $20 an hour
6) How did you hear about the service? _____
7) Would you like to be on our mailing list? ❑ Yes ❑ No
8) If your application is approved, do you agree that you are responsible for 20 hours of Volunteer Work? ❑ Yes ❑ No
9) Where will you serve these hours? _____
10) What Assistive Technology would you need (i.e., keyguard) and what is your plan to obtain it? _____
_____
11) Would you like to make a donation to help ReBoot continue this service?: ❑ Yes ❑ No Amount: $ _____
Additional Comments: _____

Sign: _____
Date: ___/___/___

For Internal Use
Date application received: ___/___/___
Approved? ❑ Yes ❑ No Additional Comments: _____ Initials: _____

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RECYCLING PROGRAM FILLS A COMMUNITY'S NEED

ReBoot

The Georgia Tools for Life Project, FODAC, and Touch the Future, Inc., created the ReBoot computer recycling program in 1997. "When we conducted consumer forums around the state, computer recycling was at the top of the list," recounted Joy Kniskern, Project Director of Georgia's Tools for Life Project. "Even with all the barriers, we knew we wanted to continue a recycling program."

ReBoot was configured as a nonprofit organization to work in collaboration with another nonprofit organization, Friends of Disabled Adults and Children (FODAC). The Georgia Project had a long standing relationship with FODAC, a private nonprofit that received support from eight large churches in the metropolitan Atlanta area. In addition, DeKalb College agreed to place students from its computer repair class in the FODAC/ReBoot facility to complete some of their course work. This mixture of resources composed the core computer recycling program team.

PARTNERS

The ReBoot Project has expanded to encompass many diverse partners that include businesses, independent living centers, technical resource centers, government agencies, and religious and service organizations. The partners meet twice a year. This keeps all partners informed and ensures that everyone is in agreement on important issues. It also helps that ReBoot has a clear mission so that all know what the project does and what it does not do.

The partners working with ReBoot are many and varied and range from the Microsoft Corporation to the National Cristina Foundation. Microsoft has donated valuable software to ReBoot. Hewlett Packard encourages its workers to volunteer at the project. Technical colleges in Atlanta place some of their A+ certification students with ReBoot for on-the-job experience. The Atlanta PC Users group sponsors a special interest group that helps the project with technical problems. ReBoot has become an approved site for receiving state and federal government surplus. Several religious and disability specific organizations have taken on the recycling project as one of their projects and provided matching funds to purchase special software, such as Jaws. The National Cristina Foundation has provided invaluable technical assistance to ReBoot.

ReBoot depends on its regionally based technology centers to receive computer donations, funnel requests from consumers for computers, and then distribute the computers and train those who receive the computers.

"We nurture the relationship between us and our partners. We host parties to celebrate our partners and tell them they are valuable to us," said Carolyn Phillips, Project Coordinator of ReBoot.

DONATIONS

Computers are collected at the central facility. ReBoot has become discriminating in the kind of computers it will accept. Currently it only accepts computers that are Pentiums.

ReBoot has received some large volume donations from corporations. For example, Lockheed Martin donated $1.5 million in high-end equipment to ReBoot. For donations of 10 or more computers, ReBoot usually

sends a staff person to the corporate site to see the equipment before agreeing to accept it. A database of donors is maintained to keep the donors informed and encourage additional donations. ReBoot regularly lets the people on the donor database know what the project is looking for. Thank you notes are always sent to donors to let them know their contributions are valued.

Donors are encouraged to bring the computers to the main facility or to its regional collection sites. However a partner organization, FODAC, has trucks available to pick up some items. Large corporations usually pallet their equipment and ship them directly to ReBoot. ReBoot relies on informal transportation arrangements between its partners. For example, staff from partner groups traveling from one region of the state to another often deliver equipment.

REFURBISHING

Once the computers are received at the central recycling facility, they are cleaned. Windows software is loaded onto the computers based on a letter of agreement with Microsoft that allows ReBoot to put the operating system on a designated number of computers. Usually New Deal software also is loaded onto the machines. This inexpensive software package includes a spread sheet, word processor, database, games, and communication tool applications. These computers are tracked with an inventory system (not yet bar coded) so that the project has a complete record of all of its equipment. ReBoot can process 30 computers a day. Last year it placed 938 computers.

DISTRIBUTION

A person wishing to receive a computer free from ReBoot fills out an application that specifies the intended use of the computer. The purpose does not have to be related to work or school. The computer can be used for recreational purposes, but ReBoot needs to know the intended use so the appropriate support system for each user can be provided. Other information requested is the identification of the person who is going to help the user with the operation of the computer, as this person also will be part of the support team. Once the application is accepted by ReBoot, the person is put on a waiting list and given an estimated length of time before a computer is available.

REQUIREMENTS

Computer recipients must provide 20 volunteer hours. These hours can be worked at FODAC or in their local communities. If recipients volunteer in their communities, the time must be documented by the local organizations. ReBoot often receives thank you notes from organizations, such as local Red Cross chapters, for sending volunteers to them. The requirement to contribute hours also raises awareness of the ReBoot program's existence in the community and has been a very successful part of the program.

Recipients of the computers must agree not to sell or loan the computers. ReBoot stresses that a computer is for a designated person, for his or her own use. This requirement eliminates many situations in which the recipient might want to pass on

the computer to another (e.g., mother to child).

Training is an integral part of the computer package that the recipient receives. At the ReBoot main facility, there is a Learning Laboratory where devices are demonstrated and the recipient and his or her support team receive basic operating lessons. The recipient is shown how to work special features, such as zoom text, which enlarges the size of the words on the computer monitor screen. The project also has developed several task sheets on various topics, such as "How to Operate a Word Processor," "How to Set Up a Computer," and "How to Clean a Computer."

Training also can be provided at the regional technology centers throughout the state. "We take the computer back to the local level and that is where the training takes place," said Phillips. "I may not know the person getting the computer in Sylvester, Georgia, but my local partner knows the person well and can personalize the training for that person. It also makes our team a little bigger, and the partnership a little bigger, and what we are trying to accomplish a little more important."

Once the person has received the computer, ReBoot staff make follow-up calls to find out how the person is doing. These calls are made from the regional office located near the person so that any additional training and technical assistance that are needed can be provided quickly.

Telephone technical assistance is provided on regularly scheduled days and times via a toll free number. Assistance is also provided via e-mail. ReBoot maintains a library of e-mail answers to respond to common questions.

VOLUNTEERS

"Volunteers help in every aspect of our organization," said Phillips. "Our volunteers are key to our success." ReBoot relies on volunteers to staff the operation. These volunteers come from corporations, such as Hewlett Packard and Bell South, which allow their employees to volunteer once a week. Another group of volunteers comes from high schools and colleges. ReBoot also has a grant with AmeriCorp which supplies volunteers. Both the Atlanta PC Users group and several recipients of the computers help rebuild donated computers.

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Working with volunteers has taught ReBoot the importance of providing a volunteer with a specific job, giving each person a title and responsibilities, and orienting the person to the operation.

There also are some paid staff members on the project. A paid technician with A+ Certification is responsible for wiping the donated computers clean and installing basic operating and applications software.

GENERATING REVENUE AND PROVIDING JOB TRAINING

Davis Memorial Goodwill Industries

Davis Memorial Goodwill began its computer recycling business in 1994 when it was awarded a grant from the Environmental Protection Agency (EPA) to rescue computers from landfills and distribute them to schools. The grant provided seed monies to develop the computer recycling operation run today as "Bargain Bytes."

Nationally, Goodwill organizations are all very independent. Davis Memorial Goodwill has 15 stores in three states or districts: Maryland, Virginia, and the District of Columbia. Several of these stores host a Bargain Bytes section that sells computers.

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Davis Memorial prides itself on providing an environment where workers can learn job skills. Currently 2,600 people have been provided with services and 600 people have been placed in jobs.

The Bargain Bytes operation is similar to other Goodwill operations in that it must generate revenue, and pay for drivers and management and truck maintenance costs. The local Goodwill provides space for the refurbishing operation and for the storage of computers.

DONATIONS

Like other Goodwill organizations, DMGI accepts donations at attended donation sites and at their headquarters. Trucking pickup service is subcontracted and Goodwill may provide pickup services for larger corporate donors, depending on the quality and quantity of machines being donated.

Donations of 286k computers create disposal problems as they are considered less desirable to sell. Goodwill is charged hazardous waste fees for safe disposal of these machines.

REFURBISHING

When computers are accepted for recycling, the computers first are cleaned, then tagged with a list of what is in each one. Generally Windows 3.1 is loaded onto the machines. Those unable to be recycled are cannibalized and used for parts.

Davis Memorial Goodwill has provided access to A+ certification training for consumers working in its recycling program. Additional expertise is provided by volunteers.

REDISTRIBUTING

"The South Dakota Street store in northeast Washington, D.C., sells the most computers because our computer technicians are available to answer customers' questions," recounted Hal Gangnath, IS Manager. A fully loaded Pentium-class machine may sell for as high as $250, and a customer can pick up a 386 CPU without monitor, keyboard or mouse, for only $10. A majority of the machines are 486s and sell for about $100.

"If you can give people something that they want to do with the computer, instead of just selling them on 'getting into technology,' then you are going to be much more successful," said Gangnath. "Today most of the customers want to get on the Internet. We can at least get them started."

Chapter 4
Assistive Technology Recycling Efforts Around the Globe

WITH A WEALTH OF SURPLUS ASSISTIVE TECHNOLOGY, MANY RECYCLING PROJECTS WANT to help people with disabilities in other countries. What is the best way for programs to help these individuals and what is the best way to supplement assistive technology?

Several models of recycling programs fill unique needs in other countries. The East West Foundation (EWF) provides computers. Another project, Whirlwind Wheelchairs International (WWI), provides assistance with mobility devices. The International Medical Equipment Collaborative (IMEC), which has strong assistance from Rotary Clubs worldwide, provides specialized medical equipment.

Recycling Meets a Variety of Needs

The decision to supply assistive technology to individuals in another country is based on the project's goal, which is meeting the unique needs of people in a country or region. To determine the goal, specific questions must be asked. Is the need for assistive technology a short-term one? Is there a need for highly specialized equipment that cannot be produced locally? Or is the need a chronic one that could be solved best through a long-term solution?

Short-term. If the need is a short-term one, that is, assistive technology is needed on an emergency basis because of war or a chaotic economic situation, then AT may be provided best through direct shipments of various technology from a recycling program to the country or community for the duration of the time period. Programs such as the New Hampshire REM and FODAC provide AT, such as walkers and wheelchairs, upon request, to fill immediate needs of indi-

viduals in other countries. They also can provide replacement parts that will last for the short term, until more permanent solutions can be explored.

Specialized Equipment. If a country needs specialized equipment, such as medical equipment or computer technology, a process can be started to meet these needs. For example, IMEC works with humanitarian organizations to identify the sites in a country, such as a hospital in Romania or a community clinic in Ethiopia, that have specialized needs. These sites then become projects for IMEC. For each site, IMEC conducts a comprehensive assessment of its needs and then works to meet the needs over a period of time through phased shipments of equipment and visits from experts.

Computer technology, because of its complexity, can be considered specialized equipment. The EWF works with partner organizations both in this country and in developing countries to determine what the local needs are and the purpose for using the technology. It then delivers the specified computers, trains the users, and provides technical support to ensure that the identified need is filled.

Long-term. If the needs are long term, then they may be filled best with locally produced technology that can be maintained locally. WWI works with groups of wheelchair users throughout the world, helping them identify wheelchair designs that fit their rugged terrain. These chairs can be made with inexpensive, locally available materials; these chairs also can be repaired easily and inexpensively. This use of appropriate technology for an individual's living conditions can lead to a long-term solution to filling assistive technology needs in developing countries.

Program Operations

International recycling programs often work with partner organizations to funnel equipment donations and volunteer help, and to identify countries and areas with needs. Funding is received through grants from sponsors interested in the projects. One such funder is the Rotary Club, with its matching funds for international programs. Rotary works closely with IMEC to provide enough resources to ensure that shipments of specialized equipment get to their destinations and are installed and used properly. Rotary has a diverse set of resources, both monetary and member expertise, which it offers to other recycling programs that need assistance.

WWI also works with partner groups in developing countries. It helps to empower local individuals and groups. It works to validate ideas and spread them to

others around the world. WWI also provides technical services to local designers and builders, provides state-of-the-art product testing, and supplies research findings that can, in turn, be funneled back to the local designers in developing countries.

ASSISTANCE TO FILL GREATEST NEED

International Medical Equipment Collaborative

The International Medical Equipment Collaborative (IMEC), established 4 years ago as a nonprofit organization, provides new and reconditioned medical equipment, training, and ongoing support to hospitals around the world. IMEC's goal is to raise the standard of health care for countries that have the greatest need.

"We provide needed medical tools to some of the poorest hospitals, clinics, and orphanages in the world," said Tom Keefe, President of IMEC. "At present we are shipping once a week. We have 50 active volunteers and 50 volunteers on call. Our goal by the end of the year 2000 is to ship out a phase of a project every day, and to have 200 active volunteers and 100 volunteers on call."

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IMEC learns about the facilities that are in need through the partner organizations with which it works. These "shepherding" organizations identify sites where IMEC will work. IMEC sees its mission as assisting doctors and nurses in these settings as they care for the sick and injured. Each site that is selected is called a project. Each phase of a project entails a shipment of needed medical items. These shipments occur over several years. IMEC also provides training to use the equipment and offers ongoing support.

"It is our belief that this approach will have a long-term impact on the standards of care in these hospitals, clinics, and orphanages," said Keefe.

Volunteers provide substantial contributions to the organization. They conduct an assessment of each site. A team of volunteers travels to the selected site and learns about the needs of the hospital and clinic. Volunteers also help staff the installation team that assists in unloading the equipment and in making the medical items operational.

IMEC successfully collaborates with other organizations. A prime partner is the Rotary. According to Keefe, Rotary clubs in his area work with affiliate Rotary clubs in the countries in which IMEC works. Local club members volunteer at the distribution center in Seabrook, New Hampshire, and they participate in on-site assessments in different countries. Rotarians are also members of installation teams, who assist when equipment is delivered overseas. The Rotary has been instrumental in finding needed resources—both people and products.

POWERFUL PARTNERS

Rotary International

Rotary International is a service organization that was started in 1905 by Paul Harris. Today, there are 1.2 million members in nearly 30,000 Rotary clubs located in 187 countries and territories. Rotarians can be powerful partners for recycling projects "because they have a ready force of volunteers," said John Sheridan, Rotary District Governor from Bow, New Hampshire. "They have people who are geared to humanitarian projects and have knowledge about a wide variety of things."

There are several advantages to partnering with Rotary clubs. Clubs in the U.S. work not only with people in their local areas but throughout the world. Overseas Rotary Clubs offer tremendous connections for U.S. clubs in assisting people in other countries. These connections are the key to success in Rotary's quest to eliminate polio around the globe. "Rotary took on the challenge a few years back to eradicate polio from the face of the earth by the year 2000," Sheridan said. "We're almost there because we have a widespread organization throughout the world with local club members who could convince their neighbors that it is okay to give their babies the vaccine."

Currently Rotary spends about $158 million annually in humanitarian projects. "Money is leveraged very, very quickly," Sheridan pointed out, primarily through a matching grants process. Local clubs contribute funds and then a district governor matches them for international projects. The Rotary Foundation of Rotary International then matches with additional funds.

Rotary also can offer innovative strategies to some of the issues facing recycling programs, such as reducing costs of shipping and transporting equipment. For example, in the aftermath of Hurricane Mitch, Rotary clubs in New Hampshire sent supplies to Honduras through free trucking services. First, Rotary asked a trucking company that had scheduled a truck to return to New Orleans from New Hampshire with no cargo if it could carry relief supplies. Rotary then contacted Chiquita Banana Corporation, which carried the supplies from New Orleans to Honduras free of charge.

Across the United States, local Rotary Clubs continually are looking for projects, primarily in four areas: club service, vocational services, community service, and international service. Sheridan urged anyone who could use services from the Rotary to contact a club in their area.

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ACCESS TO INFORMATION, ACCESS TO THE WORLD

East West Foundation

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The East West Foundation (EWF) is a nonprofit that recycles computer technology. EWF was started 10 years ago through two grants funded by the federal government to provide refurbished computer technology to non-governmental organizations in emerging republics of the former Soviet Union. This humanitarian effort was an attempt to improve relations between America and Eastern Europe. This effort began at a time when U.S. companies were trading up to the next generation of technology and there were many surplus computers. Later the foundation's mandate was expanded to include Africa, Latin America, and Central America.

In 1995 the federal grant ended. At that time, about 80% of EWF's business was international and 20% was domestic. For the last five years EWF has refocused on local communities. It began recycling computers in the Boston area, then throughout Massachusetts and New England. At this time, about 80% of EWF's business is targeted to the U.S. although it still fills international requests. Current international projects include Kenya, Croatia, Honduras, Nigeria, Senegal, Angola, and South Africa.

As a nonprofit organization, EWF covers its costs by fundraising and selling technology that is refurbished for reuse. It refurbishes 3,500 to 4,000 systems per year, primarily 486 generation computers. New Deal Software, a sophisticated software with applications that can run on low-end machines, is loaded onto the computers. A 486 computer sells for $250. This price includes 4 to 6 hours of basic computer literacy training for every family.

EWF works primarily with organizations, schools, and nonprofit agencies. Training is conducted in partnership with community-based organizations that know the families that need this technology. To help provide basic computer literacy, EWF trains the organization's staff members who in turn train families. "Providing that training and technical support, even on the most basic level, is critical to the success of providing this important technology to families," said Stephen Farrell, President of EWF.

"Access to technology means access to information and access to the world. Access is critical in both educational and personal areas. To be able to communicate, to be able to find out information, that's what this computer stuff is all about. That's what getting onto the Internet is all about," Farrell said.

LOCAL PRODUCTION FOR LONG-TERM SOLUTIONS

Whirlwind Wheelchair International

American wheelchairs exported for use in developing countries fail and become useless in a short time because of the unpaved roads and bumpy surfaces in most overseas countries. "Most present wheelchair designs won't even cross a rutted dirt road. They are too unstable. Their traction and handling aren't good enough," said Ralf Hotchkiss, Technical Director of Whirlwind Wheelchair International.

To build better, more rugged wheelchairs than the standard American variety, many wheelchair users in developing countries are taking matters into their own hands. They are designing and building their own chairs in a way that will allow the chairs to withstand rough surfaces and to be serviced easily. They know that gifts of secondhand wheelchairs from the U.S. are not the answer. The U.S. chairs, while a first start, are not a viable, long-term solution.

Funds from USAID to the Nicaraguan Independent Living Center initiated the Whirlwind Wheelchair International Project in 1982 for the manufacturing of locally produced wheelchairs. The center's work was started by four teenagers who had shared one wheelchair. They used the chair on unpaved roads and rough terrain and the chair would break down. The teens became skilled mechanics by figuring out how and why it had failed. They chopped and lowered the chair, narrowed it, and reinforced it to the point where it really did run well.

Working with Hotchkiss, the Nicaraguans went on to develop their own design, the Whirlwind Wheelchair. The Whirlwind Wheelchair is a simple, folding wheelchair, which weighs 35 lbs. instead of 50 lbs. for a standard chair. This lightweight chair can be made in one week by one mechanic at a cost of $60 to $100 for materials.

"Today wheelchairs are being made in 25 countries all around the Third World. About 15,000 chairs have been made and that is only the tip of the iceberg. Easily 20 million are needed today. Nearly 99% of the people in the Third World who need wheelchairs have nothing to ride," said Hotchkiss.

Whirlwind Wheelchair International has helped identify good design solutions and passed that knowledge on through a network of local wheelchair manufacturers in developing countries. For example, ball bearings are a key component for the smooth ride of a wheelchair, but are expensive. A solution was adapted from a bearing invented by a U.S. farmer in Appalachia. It uses common nails with the heads cut off to produce a needle bearing (16 penny nails on a 5/8 inch axle). This bearing is strong and lasts 5 years with limited maintenance. Twelve regular bearings for one chair would cost $100 in Nicaragua. This needle bearing costs only $1.

Wheels imported from other countries commonly break down. The cost of replacement rear wheels ($125 to $300) bought in the United States is more than the cost of an entire wheelchair in developing countries. Rubber wheels for the front of the Whirlwind were adapted from a Zimbabwe push cart design. These wheels are molded rubber with a deep indentation on both sides, and

were made originally as very wide wheels. These wheels are very flexible; they "walk" over rocks and never go flat. They can be made in any auto tire retread shop and last in excess of 10 years because of flexibility and the high abrasion resistance of auto tire retread rubber.

Another critical concern is preventing pressure sores from developing in those individuals with spinal cord injuries who use wheelchairs. The development of pressure sores is an enormous problem for those who use wheelchairs and for those confined to bed. Worldwide, most people with spinal cord injuries, who are confined to bed, die of pressure sores within a year. Even after a person receives a wheelchair, pressure sores from improper or a lack of cushioning continue to be a life-threatening problem, as chronic infections often result from the sores. American cushions are of little use because they often go flat and there are no spare parts available.

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Because there are few survivors of spinal cord injuries in many developing countries, the critical mass of active survivors needed for peer support, and to pass on information to each other and the medical profession about improving wheelchair cushions, does not exist. Fortunately, in a handful of countries, a small number of people with spinal cord injuries have been developing low cost seat cushions. One cushion base design that has been successful is made from 15 layers of corrugated cardboard that are cut, moistened with water, and molded like paper mache to the person's shape. A blanket or foam cushion is placed on top of the cardboard base.

Women in developing countries have become active wheelchair designers. They have designed chairs that are more functional for childcare and work requirements, such as vegetable farming, and for working on the ground, for those with limited furniture and no tables on which to work. Their chair designs tend to be more stable and more capable of carrying goods and tools than the wheelchairs designed for men in their countries.

The staff at San Francisco State University provide training and technical support to local wheelchair designers. They identify good ideas from all over the world, conduct tests on them, and make them available to other people.

"If the level of support and the level of capital that's required to get American wheelchairs down to Third World countries were put into helping people make their own chairs, then they could make chairs that really work," said Hotchkiss.

Chapter 5
National Issues

TO GAIN MORE SUPPORT FOR EXISTING RECYCLING ACTIVITIES AND TO PROMOTE THE development of new AT redistribution efforts, programs across the country must work together. Collectively, programs can shape solutions for common problems. Issues such as financing, transportation, marketing, technical assistance, and assuring program sustainability are themes that all programs share. Through the exchange of ideas and the development of national strategies in these critical issue areas, the effectiveness of all programs will be increased. A number of ideas that begin to address many of these issues are presented in this chapter.

Payment And Funding For Recycled Devices

Issue. Payment for redistributed devices, through third party and other funding sources, has been problematic.

Discussion. Only a small percentage of consumers who need and would benefit from assistive technology have the AT that they need. The inability of consumers to acquire appropriate funding is a major barrier to obtaining AT. The New Hampshire Assistive Technology Partnership analyzed the funding sources used to purchase its refurbished devices and found that 47% were purchased through private pay, 33% were purchased by DME vendors to restock their inventories, 7% of devices were funded with Medicaid dollars, and no devices were purchased through Medicare funding.

Historically, an AT redistribution program often has been looked upon as a type of "welfare" program, which tries to get needed equipment to those who cannot afford it. While well-intentioned, this idea has created a perception that redistribution is a last resort and is less desirable for mainstream users who also are trying to get their needs met. The welfare perception also has been fueled by the medical establishment, which promotes the purchase of new items as the

best and only option. Those in the medical profession often do not examine the multifaceted needs of individuals. As a result, limited resources have been spent on certain items that are deemed "acceptable" and "essential" by the medical professions while other important items are considered luxuries or nonessential equipment.

With the work of Tech Act projects over the past 10 years, a much greater segment of the population has been exposed to the possibilities created by assistive technology, and perceptions have changed. Individuals of all ages and with many different types of disabilities are becoming more aware of technological solutions that can improve lives and increase options for work, school, and involvement with the community. Unfortunately, funding streams have held to a more conservative definition of medical necessity that does not look at the broader needs of an individual's life. Items ranging from complex augmentative and alternative communication (AAC) devices to simpler aids for independent living have been difficult to get funded through conventional funding streams.

The financial benefits of equipment redistribution programs can be tremendous. Providing refurbished devices at no cost or at a fraction of the cost of a new item will save the individual a large amount of money. Programs that allow trial use, leasing, or use for a temporary disability also can add immensely to the cost effectiveness of assistive technology purchases. Many insurance companies and managed care plans do not have restrictions on redistributed items, but because of the current system, these low cost options do not get favorable recognition. These systems can be changed.

Recommendations. A significant need exists for educating those who fund assistive technology about the financial and personal benefits of equipment redistribution programs. These funders include Medicaid, Medicare, private insurance companies, managed care plans, and vocational rehabilitation. Education also is needed to change the image of the redistribution program from that of a welfare program into one of a generally accepted option for meeting individual needs. The education component also should include information about the benefits of assistive technology in making possible certain essential activities of life, such as independent living and employment. The case for better funding for refurbished devices also would be furthered by the recognition that these less expensive devices can speed the recovery process. Additionally, refurbished devices can be a needed alternative to inappropriate or partial assistive technology solutions that can cause costly, secondary injuries.

Efforts to change regulations and procedures that do not allow the use of available refurbished devices must be encouraged. Not only should these efforts be allowed, but incentives also must be built into programs that allow redistrib-

Information About Federal Funding Sources

MEDICAID

There are no national guidelines for Medicaid coverage of DME. Coverage varies from state to state. Provisions for paying for recycled equipment with Medicaid also vary in each state. There are some basic payment conditions to which states must adhere. For example, participants in the programs must provide appropriate, high quality services. In some instances, certain reused equipment may not meet the definitions of that standard. Consequently, those who are interested in changing Medicaid reimbursement policy must work with the state agencies that set the policies

Medicaid has funded demonstration centers that are looking at recycling. One involves an independent living center (ILC) that operates a lending library. Beneficiaries can borrow equipment to use while their equipment is being repaired or is being ordered. This same center also is exploring expedited payments, primarily through receiving prior authorization for purchases. Additionally, the ILC is trying out mass purchasing and being able to purchase non-covered items as long as they are within the price authorized for equipment. State Medicaid agencies can identify best practices for reused equipment purchase by conducting research on the effects of innovative reimbursement policies.

State agencies were provided some additional guidance from a recent court case. DaSario v. Thomas examined when a list of items may be used to determine coverage of medical equipment. State agencies may develop a list of equipment for pre-approval. However, a procedure must be in place for individual beneficiaries to request any item not on the list. Each determination has to be based on the needs of the specific beneficiary. Any process to evaluate equipment must be timely and employ reasonable and specific criteria to judge coverage. The state agency must have the pre-approved list available for beneficiaries to review and beneficiaries have the right to a fair hearing on any item not on the list.

MEDICARE

Medicare was begun as a statutory benefit program 30 years ago. It functioned as an acute care program that has had a number of additions to it over time. Medicare does not have any restrictions related to payment for reused or recycled equipment. It does not address these issues. Individual contractors make coverage decisions, with guidance from Medicare. Generally contractors need Food and Drug Administration (FDA) approval clearance and any treatment must meet safety and efficacy standards, through literature and scientific evidence. If Medicare purchases the equipment, it belongs to the beneficiary. If Medicare rents the equipment, it belongs to the DME company.

Changing national policy on Medicare coverage for recycled AT equipment requires those requesting the change to go through a process. The Health Care Financing Administration (HCFA) will consider changes in coverage upon receipt of formal requests. HCFA's Medicare Coverage Advisory Committee (MCAC), which includes one consumer representative and one industry representative, is responsible for responding to these requests for change.

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ution of AT as these programs are more cost-effective.

Collaborative efforts with vendors, manufacturers, and other providers of technology related services also would be beneficial in improving the funding of redistribution programs. Demonstrating that these programs are not competing with existing distribution programs is vital to increasing support for redistribution efforts. Equally essential is encouraging programs to work together with vendors in meeting the needs of individuals who have no insurance or limited insurance, as well as those who have limited means and some insurance coverage.

Transportation

Issue. Transferring a piece of assistive technology from one location to another can be a difficult task.

Discussion. Problems related to pickup and delivery of AT equipment are common in many programs, both large and small. Programs that have tried to operate on a statewide basis, especially in large states, have had to overcome major transportation issues to make a system work. Programs run in a small region or a large urban area have a great advantage in not having to move equipment over large distances.

Programs have used a number of means to address the transportation problem. Using the mail or other delivery companies is effective but is clearly costly. When items are large or delicate, delivery becomes more of a challenge and the costs become greater. When individual donors or users can provide their own transportation, costs are minimized and the breakage issues are reduced. The use of other third parties, such as independent living centers, public buses, or DME vendors, also has helped address transportation problems. But great barriers still exist when moving large numbers of items in redistribution programs at minimal cost over large geographic areas.

Recommendations. The key to the management of transportation issues is to use other existing resources to address the problem. Other resources can include the use of individuals who create a system to do their own pickup and delivery to support the program. Other forms of resources are those that can be achieved through collaborative efforts with other organizations. For example, recycling programs can receive help in transporting items to people who need them by working with independent living centers. Visiting Nurse organizations, or other community support agencies, which already have established some type of transportation system in their geographic areas.

Another way of addressing the transportation issue is to develop new

Policy Issues Concerning AT Payment by Public and Private Insurance Programs

The policies of public or private insurance programs should allow the purchase of reutilized/refurbished/recycled equipment.

Policies also should allow used equipment to be donated to equipment reutilization efforts.

Some of the questions that need to be addressed by recycling programs include the following:

1. What is the attitude of the funder toward the use and purchase of refurbished assistive devices?
2. What are some incentives for funders to purchase reutilized or refurbished equipment?
3. How can the attitude of the funders be affected with respect to reutilized equipment?
4. How might the purchasing process be expedited?

resources, primarily through grant development or fundraising efforts that would directly address the issues of equipment delivery. Delivery vehicles could be purchased, drivers could be hired, or shipping could be paid with additional financial resources. One primary source of funds could be the shipping companies themselves. Most of the large shipping companies have foundations that support community activities. A community activity that focused on shipping would be a natural activity for a shipping based foundation to support. Essential to this effort would be creating a fund development message that generates a positive image for the company and the community-based program.

Program Sustainability

Issue. Developing an equipment redistribution program can be costly and maintaining it can be difficult.

Discussion. Many local, state, and national programs have been developed throughout the country, and operate equipment redistribution under many different models. Models range from purely voluntary programs that distribute equipment free to individuals to more complex vendor based models that involve sales and sophisticated distribution mechanisms. Programs have been developed with support through sources such as Tech Act projects with the intention of operating them on an ongoing basis. Some continue while others have not. All programs will say that more support would be helpful and many know that it is essential for continuing to meet consumer needs.

With varied needs by individuals with disabilities and with a vast amount of unused assistive technology available in many locations, it seems inevitable that

these forces will continue to work toward complementing each other. Sustainability of programs will be promoted by continuing to create awareness of the need for recycling AT and to develop the ability of programs to find new resources that will support services.

Recommendations. One of the primary ways to sustain programs is to develop a national coordinated effort to promote equipment redistribution programs. There continues to be a lack of coordinated effort that could focus attention on these programs and allow support to come in greater amounts. A national effort could provide information on successful efforts as well as the less successful efforts. Sharing of resources also could help create better relationships with funders and change policies that are not supportive of equipment redistribution programs. In addition, there might be greater success in accessing support from foundations or other grant providing agencies if resources were shared.

Another benefit of a national effort would be to provide technical assistance to programs that were starting, or needed strengthening, or those that were looking for a change of direction. Technical assistance efforts could help coordinate international activities that could work collaboratively with national efforts.

The development of collaborative efforts with manufacturers, vendors, and other funders of assistive technology would enhance sustainability of programs. The National Cristina Foundation uses a model in which computers are collected from collaborating organizations and redistributed through affiliated organizations. A similar process could be started to coordinate and enhance local and regional distribution for a wide range of assistive technology.

Regionalization of efforts is another way of stretching limited resources. A number of small programs might pool efforts in a way that would keep functions from being duplicated while putting certain tasks such as equipment rehabilitation in the hands of a limited number of people trained to do the job. The ability to take in and store equipment also could be enhanced by the use of regional facilities. Regional efforts could be used to develop Web sites and other methods for marketing available equipment and programs.

PROVIDING GUIDANCE TO COMPUTER RECYCLING PROGRAMS

National Cristina Foundation

Since 1984 the National Cristina Foundation (NCF), a nonprofit public charity, has received donations of surplus and used computers from corporations and individuals. NCF directs these donations to grassroots partner organizations throughout the United States and abroad that provide training and support to people with disabilities and to economically disadvantaged persons. Additionally, based on its years of experience, NCF now provides guidance to organizations seeking to develop computer reutilization programs in their own communities. It has assisted programs in a number of states that created reutilization projects.

To assist programs in developing computer reutilization projects within their regions of the country, NCF has created the NCF Re-Utilization Model. This model provides a systems approach to the entire task of managing the acquisition of donations of computer technology, refurbishing the equipment, redistributing it, training users, and evaluating the process as a whole (see subsequent section listing the seven components of the NCF Re-Utilization Model). The model has been successful in diverse settings as it allows for variations among individual organizations. "If we were going to build a program that a local community would define and make its own, it would be based on the fact that they adapted the model to fit their local needs. We can only provide guidance about the roadway and support the sharing of practices and solutions," said Yvette Marrin, NCF's president.

The NCF model provides a systematic approach that can work on either a small or a large scale. The conceptual framework of the model enables programs to develop guidelines for using practical and logical approaches across a range of issues. These include planning for what are seen as acceptable equipment donations, how these might be acquired, and what mechanisms must be considered for getting equipment to new users. Most important, it presents the factors that can assess what resources may be available to a program to help achieve its objectives.

NCF has found that, based on how the model is applied, solutions will vary because of a variety of factors such as geography and organizational structures. It also has found that projects need to create their own knowledge base and support mechanisms to create and maintain momentum. If a program is to succeed, it needs a collaborative effort by groups of people who come together with a shared vision.

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Seven Components of the NCF Re-Utilization Model

1. Management - Establish and administer an efficient system to maintain a flow of usable, donated computer technology into targeted programs.
2. Acquisition - Obtain, assess, and prepare (i.e., repair, configure, adapt as needed) donated computer technology.
3. Deployment - Develop and maintain an efficient placement and distribution process.
4. Training - Develop procedures for assuring the preparation of all concerned with supporting and/or using donated technology.
5. Sharing -Provide/exchange/ obtain information about project needs and solutions.
6. Evaluation - Obtain and use information for ongoing decision-making, accountability, and validation of project implementation.
7. Collaboration - Address issues related to the establishment of relationships that contribute to successful implementation of the NCF Re-Utilization Model.

ELECTRONIC NETWORK CONNECTS NORTHEAST REGION

Northeast Assistive Technology Exchange

The Tech Act projects in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont joined forces to support the Northeast Assistive Technology (NEAT) Exchange. The Exchange is a virtual entity with a presence on the Internet that allows residents of the northeastern states a common avenue to find recycled equipment throughout the region, regardless of state borders.

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The Web page (http://www.neatexchange.org) allows users to list assistive technology items to sell, and identify items that others wish to sell or give away. It also allows people to contact participating partners and vendors. A database tracks the equipment and provides monthly statistics of exchange activity.

John Ficarro, Project Director of the Connecticut Assistive Technology Project, is a firm believer in collaborative efforts. The NEAT Exchange has brought the six states together for these efforts and provides a model for other regions of the country.

"All of the northeastern states contributed financially to develop a database and worked together on the design of the database, " said Ficarro. "The result was a product that was better and less expensive than we might have produced if we had worked on it individually. Creatively looking for partners has benefits you don't even think of at the time the collaboration is being formed."

Appendixes

RESNA Technical Assistance Project
Discovering Hidden Resources:
Assistive Technology
Equipment Recycling
March 29-30, 1999

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EXCHANGE/RECYCLING PROGRAMS OFFER NEW LIFE FOR AT DEVICES

Assistive technology (AT) equipment exchange and recycling programs offer alternatives for consumers and professionals to reduce the cost of devices and equipment and improve their availability.

- **Equipment exchange** programs match individuals who need assistive technology devices with people who are selling or donating such devices.
- **Equipment recycling** programs maintain physical possession of the equipment, reconditions the used equipment as needed, and offers it for sale or donates it.

Why Establish a Program

Exchange and recycling programs take equipment that would otherwise be abandoned and put it back into circulation. Exchange and recycled equipment programs provide options for customers who need equipment that would not be reimbursed by third party payers. For example, backup wheel chairs and shower chairs are not typically covered by Medicaid. However, consumers can buy these items used through exchange and recycling programs at affordable prices.

Exchange and recycling programs can shorten the time it takes for consumers to receive devices. For example, the New Jersey Tech Act project operates an equipment exchange program, Back In Action, that matches buyers with sellers in 3 weeks, on the average, as opposed to a 6-12 month turn around time for buyers of new equipment who are eligible for public funding.

Parents can use recycled devices to fill their children's need for assistive technology as the children grow and their needs change. Exchange and recycling programs are also sources of recreational assistive technology, which is not usually paid for by public or private funders.

Table 1 details equipment exchange programs. Often projects do not track the number of matches, since they don't have the equipment in their possession nor monitor the agreements between parties. However, of those that are able to track these data, there were over 500 matches made in the past year.

Table 2 summarizes existing recycling programs. Since the projects have control of the items, the number of recycled items are easier to track. Over 8,000 items were recycled in the past year.

Equipment Exchange Programs

Exchange services are often accessed through the project's information services. Typical of these exchange programs is the Delaware Assistive Technology Initiative's (DATI) program. In its quarterly newsletter it lists assistive technology devices that are either being donated, sold, or requested. Contact information gives the first names of the persons who are donating, selling or needing the assistive technology device and their phone numbers. Initially DATI had not published contact information but found the volume of calls overwhelmed the limited DATI staff resources. Also DATI found that staff could not answer questions about specific items being sold, nor did they have updated information on whether items were still available because they did not have physical possession of the device.

Individuals interested in using the exchange service may contact the person selling the equipment directly. The two parties negotiate the price of the item and any shipping or transportation

arrangements. Equipment is purchased "as is" with no warranties or guarantees.

To promote the exchange program, DATI distributes its newsletter to various agencies, such as the Department of Parks and Recreation, the Division for the Visually Impaired, as well as durable medical equipment suppliers, occupational therapists, physical therapists, and speech-language pathologists. It also makes the listing available to its AT Resource Centers and is in the process of adding the list to its web site. DATI has noted that many service providers routinely check the listing for devices their clients needs. Surprisingly, a large number of referrals to DATI come from durable medical equipment (DME) providers.

Use of Web Sites for Equipment Exchange

Many state Tech Act projects post their list of devices for exchange on their web sites. The Washington Assistive Technology Alliance (WATA) has an online database called the "AT Exchange." It functions as a marketplace for the exchange, sale, and donation of AT devices, including computers, software, and modems. The project collects data on who used the database, for what purpose, and whether they were successful in obtaining or selling/donating the item. When a person finds a listing they are interested in, they select the link to the e-mail address of the contact person to express their interest or to ask any questions they may have. Persons who do not have an e-mail address or who use public libraries or their friend's system to access the database can list the devices using a default e-mail address. Those without access to the Internet can use the database by calling the WATA's toll free number. Project staff will post the listings, collect responses, and facilitate communications between interested parties. The database, including the search functions, is fully accessible to those using text-based browsers and adaptive computer access.

Equipment Recycling Programs

Several projects operate equipment recycling programs. The Arkansas ICAN Project combines its recycling program with its equipment exchange and equipment loan programs. ICAN is able to call on the combined resources of all three programs to meet the needs of the state's citizens with disabilities.

For the recycling program, ICAN receives donated equipment from a variety of sources. This equipment is refurbished by Tech Act project staff and volunteers and then donated to individuals or local schools to fill specific needs.

The donations come primarily from individuals and state agencies. For example, Children's Medical Services, the state's Medicaid provider, gives ICAN equipment as new equipment is provided to Medicaid recipients. ICAN also receives donations from DME vendors and other organizations. The Arkansas MS Society donated its small collection of equipment to ICAN because it felt that one larger collection would be more efficient and effective in meeting the AT needs of the citizens in the state.

Specialization in Computer Recycling

In Nevada, Accessible Space Inc., a private non-profit organization, has been operating the state's assistive technology recycling program for the last two years under a grant from its state's Tech Act project. It specializes in recycling computers, although it handles durable medical equipment and other AT as well. Accessible Space receives donations of large quantities of computers, including those with Pentium chips, from state agencies and commercial donors, such as the Nevada Power Company. A skilled crew of volunteers conducts a diagnostic evaluation of the equipment, refurbishes them with additional parts as needed, and then sells them. The organization sells about 12 computer packages a month. The Center also provides training to the individuals buying the equipment and helps with the set up. Funds from the sale of the equipment are used to purchase repair parts and help sustain the recycling program.

Vendor Resale Model

The Recycled Equipment Marketplace (REM) is operated by ATECH Services, a nonprofit agency developed in collaboration with the New Hampshire Tech Act project. It originally served just New

Table 1. Equipment Exchange Programs

State	Operator	Approximate Number of Matches/Year	Web Address/Contact Information
Arkansas	Arkansas ICAN	78	501/666-8868
Delaware	Tech Act Project	57	http://www.asel.udel.edu/dati/recycle/index.html
Florida	Tech Act Project	25	http://www.seflin.org/faast
Idaho	Tech Act Project Some state agency involvement	no recent data	http://www.eis.uidaho.edu/cdhd/iatp/atrecycle.htm
Indiana	Tech Act Project	13 since March	800/528-8246
Iowa	InfoTech	no data	http://www.uiowa.edu/infotech/
Kentucky	Tech Act Project	no data	http://www.katsnet.org
Michigan	Kenny Rehab	75	http://comnet.org/kenny/eq_index.html
Minnesota	See IA	no data	http://www.uiowa.edu/infotech/
Missouri	Tech Act Project	20	htto://www.dolir.state.mo.us/matp/swapnshop.htm
Montana	Tech Act Project	no data	http://rudi.montech.umt.edu/
Nebraska	Tech Act Project - Recycled Equipment Exchange Listing	no data	http://www.nde.state.ne.us/ATP/TECHome.html
New Hampshire	Tech Act Project - New England Exchange	not available	http://www.neatexchange.org
New Jersey	Tech Act Project and Matheny School and Hospital	237	http://www.mathenynj.com/tarp/tarp.htm
New York	Tech Act Project, Office of Advocate for Persons with Disabilities	not available	518/473-4128
North Carolina	private nonprofit	48	http://www.pat.org
Ohio	Tech Act Project	10-15	http://train.state.oh.us
Oklahoma	Tech Act Project and I&R Subcontractor	new program	http://www.okstate.edu/wellness/resale.htm
Oregon	Access Technologies	not available	503/361-1201
Pennsylvania	Tech Act Project	30	http://trfn.clpgh.org/srac/resources/piat
South Dakota	Tech Act Project	not available	http://dakotalink.tie.net/
Utah	Access Utah Network	not available	http://www.accessut.state.ut.us/forsale.htm
Virginia	VA United Way	no data	http://www.vats.org
Washington	Tech Act Project	20-25	http://wata.org/atexchange.index.html

Table 2. Equipment Recycling Programs

State	Operator	Type of Equipment*	Approximate Number of Items Recycled/Year	Web Site/Contact Information
Alabama	Tech Act project	DME	267	888/923-8764 (Instate) 334/450-6362
Arkansas	Tech Act Project	computers AT and DME	300	501/666-8868
Georgia	Tech Act Project Reboot	computers	600 computers/ computer parts	404/657-3084
Illinois	Tech Act Project, AT Exchange Network (ATEN)	computers and other AT	2,000	http://www.isbe.state.il.us/ isbesites/spec_ed/aten/ATEN.htm
Kentucky	Tech Act Project, KY Industries for the Blind, Dept for the Blind, DVR	computers	425	800/327-5287
Maine	Southern Maine Parent Awareness	computers	130/ best year	207/324-2338
Minnesota	Goodwill, Easter Seal	computers AT and DME	2,700	614/646-2591 ext 149
Missouri	Capper Foundation, Center for Assistive Technology	AT and DME	400	816/231-7166
Nevada	New Technology Center	computers, AT, DME	84	702/259-0789
New Hampshire	Tech Act Project Recycled Equipment Marketplace	all AT devices	472	http://www.neatexchange.org
New Jersey	Tech Act Project Back in Action	computers AT and DME	209	http://www.mathenynj.com/tarp/ tarp.htm
New York	Two Subcontractors	computers	296	518/473-4128
Ohio	Tech Act Project and Washington State Community College	computers	no data	614/292-3158 740/374-8716 ext 807
Oregon	Access Technologies	AT, DME	not available	503/361-1201
Utah	Tech Act Project	all AT devices	35	435/797-1432 gary@cpd2.usu.edu

State	Operator	Type of Equipment*	Approximate Number of Items Recycled/Year	Web Site/Contact Information
Washington	Easter Seal	computers, peripherals, and ed software	137 computer peripherals, 58 software	800/214-8731 (Instate) 509/328-9350

* DME - Durable Medical Equipment
* AT - Assistive Technology Devices

Hampshire but has now expanded to serve the entire northeastern region of the country, encompassing Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Like other recycling programs, REM receives equipment through donations from individuals and health related organizations. However, once the equipment is refurbished, the program acts like a wholesaler and sells it not to consumers but to participating durable medical equipment vendors. Consumers access the program by contacting their DME vendor. Currently there are eleven vendors participating in the program. Each pays a $200 annual fee and has access to the entire inventory. Vendors agree to take on the liability for any product they sell. They also handle third party billing and agree to deal with replacement, warranty, and ongoing service issues.

The REM provides high quality recycled equipment in good working order on a regular basis. Vendors can use the REM as a source of equipment to fill short term customer rental needs as well as fill requests for equipment for demonstration and assessment for up to 30 days prior to purchase. Vendors who are unable to see the equipment at the warehouse, can obtain a photo through the Internet. There is also 24 hour access to the current inventory from the equipment exchange web site.

Both Medicaid and Medicare in New Hampshire have been very supportive of the REM because they see that recycled equipment can be purchased for less than half of what new equipment would cost. New Hampshire Medicaid routinely reimburses vendors for the purchase of recycled equipment. Private insurance has been equally supportive. If a customer's HMO has a cap on the amount of equipment that can be purchased, the lower price of recycled equipment allows the customer to purchase more within the limit.

Vendors also look to REM as a reliable source for parts for older equipment. REM tears down excess equipment that can not be refurbished and keeps the parts. The spare parts have created a separate new market for the vendors. The used parts are inexpensive and consumers appreciate using recycled parts since insurance companies usually do not reimburse for repairs and manufacturers often discontinue making replacement parts for older models.

Summary

Recycling and exchange programs fill several needs. They make assistive technology available to individuals with disabilities at reduced cost or no cost. They supply needed equipment in a timely manner, and they make convenience and other items (such as backup devices and recreational technology) affordable to many consumers. These programs also leverage resources by reusing equipment that otherwise would be abandoned.

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